

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: BOW LAKE	Lake Area (ha):	469.72
Town: STRAFFORD	Maximum depth (m):	21.0
County: Strafford	Mean depth (m):	6.4
River Basin: Coastal	Volume (m ³):	30256000
Latitude: 43°15'00" N	Relative depth:	0.9
Longitude: 71°11'00" W	Shore configuration:	2.23
Elevation (ft): 515	Areal water load (m/yr):	3.96
Shore length (m): 17100	Flushing rate (yr ⁻¹):	0.60
Watershed area (ha): 3374.9	P retention coeff.:	0.70
% watershed ponded: 0.0	Lake type:	natural w/dam

BIOLOGICAL:

	14 February 1990	23 August 1989
DOM. PHYTOPLANKTON (% TOTAL) #1	ASTERIONELLA 95%	CHRYOSOPHAERELLA 55%
#2		ASTERIONELLA 20%
#3		TABELLARIA 15%
PHYTOPLANKTON ABUNDANCE (cells/mL)		2555.0
CHLOROPHYLL-A (µg/L)		4.36
DOM. ZOOPLANKTON (% TOTAL) #1	ASPLANCHNA 65%	KERATELLA 32%
#2	KELLICOTTIA 19%	KELLICOTTIA 15%
#3		NAUPLIUS LARVA 15%
ROTIFERS/LITER	94	66
MICROCRUSTACEA/LITER	6	45
ZOOPLANKTON ABUNDANCE (#/L)	105	112
VASCULAR PLANT ABUNDANCE		Sparse
SECCHI DISK TRANSPARENCY (m)		6.8
BOTTOM DISSOLVED OXYGEN (mg/L)	8.1	0.9
BACTERIA (fecal col., #/100 ml) #1		< 10
#2		< 10
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 6.9
Hypolimnion volume (m³): 4433000

CHEMICAL:Lake: BOW LAKE
Town: STRAFFORD

	14 February 1990		23 August 1989		
DEPTH (m)	6.0	12.0	2.5	7.5	14.0
pH (units)	6.5	6.3	7.0	6.3	6.2
A.N.C. (Alkalinity)	4.1	4.3	4.1	4.2	6.2
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.25	0.25	0.30	0.48	0.41
TOTAL PHOSPHORUS	0.009	0.006	0.003	0.007	0.009
CONDUCTIVITY (μ mhos/cm)	34.9	36.5	31.2	32.2	37.0
APPARENT COLOR (cpu)	11	13	14	14	29
MAGNESIUM			0.58		
CALCIUM			1.9		
SODIUM			3.0		
POTASSIUM			0.60		
CHLORIDE	3	4	3		3
SULFATE	4	4	4		4
TN : TP	28	42	100		46
CALCITE SATURATION INDEX			3.4		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1989

D.O. S.D. PLANT CHL TOTAL CLASS

5	1	0	1	7	Meso.
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COMMENTS:

1. Bow Lake was previously surveyed and classified in 1978. The lake was rated oligotrophic at that time. The major change was in dissolved oxygen. In 1989 the dissolved oxygen was less than 2 mg/L below a depth of 8 meters, and was less than 1 mg/L at the bottom. The dissolved oxygen was 2.5 mg/L at the bottom in 1978. Part of the reduced oxygen levels in 1989 may be due to the fact that the 1989 sampling occurred a month later in the summer than in 1978. However, VLAP data shows that even in early July, 1990, the bottom D.O. was only 1.2 mg/L.
2. The whole-water phytoplankton was dominated by Cryptomonads (85%).

BOW LAKE

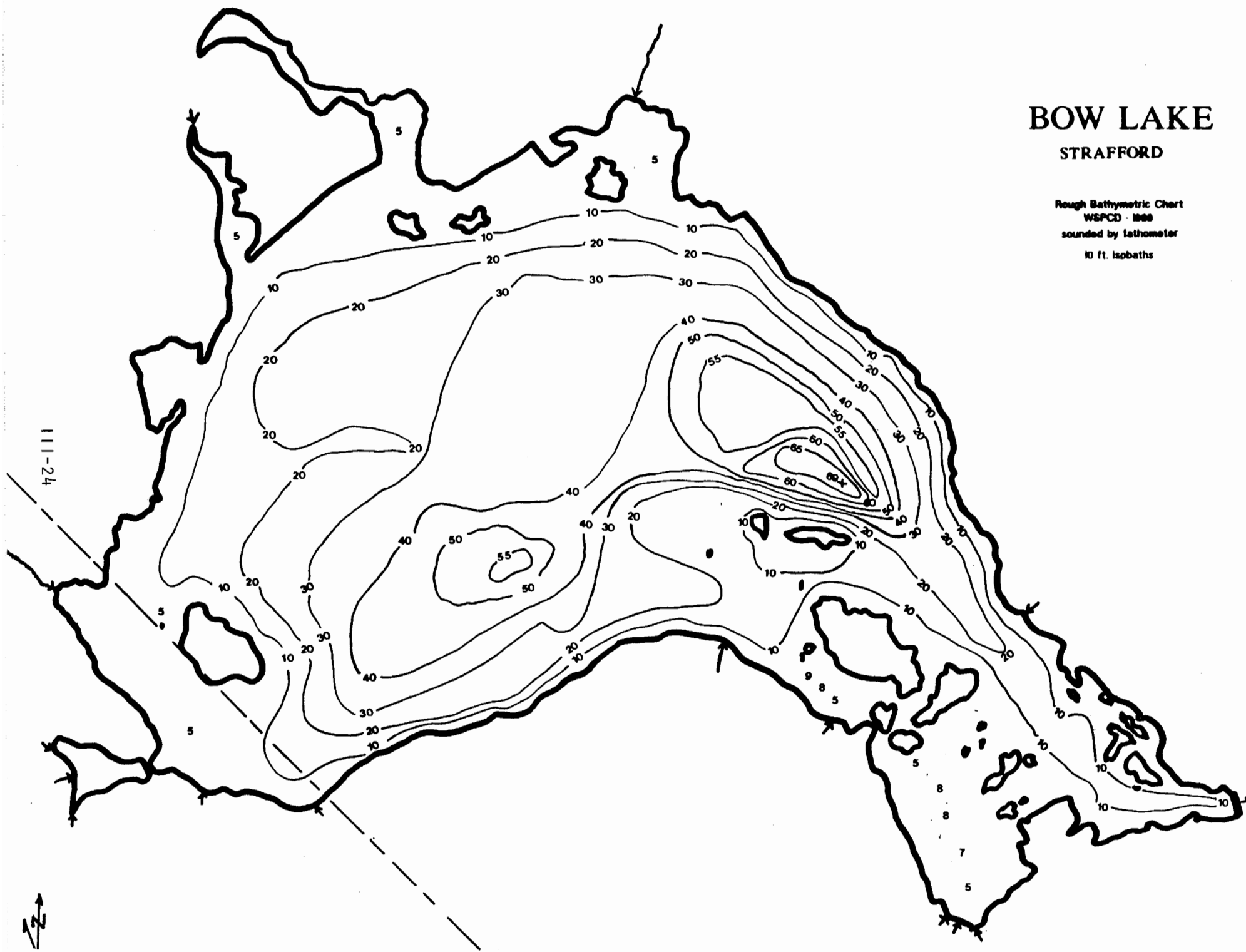
STRAFFORD

Rough Bathymetric Chart

WSPCD - 1000

sounded by lathometer

10 ft. isobaths



FIELD DATA SHEET

LAKE: BOW LAKE
DATE: 08/23/89

TOWN: STRAFFORD
WEATHER: PARTLY CLOUDY; 70'S TO 80'S

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	23.5	8.1	94 %
	1.0	23.5	8.2	95 %
	2.0	23.2	8.2	95 %
	4.0	23.2	8.1	94 %
	5.0	23.0	8.0	93 %
	6.0	22.2	7.9	89 %
	7.0	18.2	4.3	45 %
	8.0	14.8	1.9	18 %
	9.0	12.5	1.7	16 %
	10.0	11.5	1.6	14 %
	11.0	11.0	1.9	17 %
	12.0	10.5	1.6	14 %
	14.0	10.0	1.3	11 %
	16.0	9.5	1.1	9 %
	18.0	9.5	0.9	8 %
	19.5	9.5	0.9	8 %

SECCHI DISK (m): 6.8

COMMENTS:

BOTTOM DEPTH (m): 19.7

TIME: 1015

*Dissolved oxygen values are in mg/L

AQUATIC PLANT SURVEY			
LAKE: BOW LAKE		TOWN: STRAFFORD	DATE: 08/23/89
Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
Y	Nuphar	Yellow water lily	Sparse
W	Potamogeton	Pondweed	Sparse
T	Typha	Cattail	Sparse
U	Utricularia	Bladderwort	Sparse
b	Scirpus	Bulrush	Sparse
E	Eriocaulon septangulare	Pipewort	Sparse
d	Dulichium arundinaceum	Three-way sedge	Sparse
e	Eleocharis	Spike rush	Scattered
A	Sagittaria	Arrowhead	Sparse
H	Chamaedaphne calyculata	Leatherleaf	Sparse
S	Sparganium	Bur reed	Scattered
C	Carex	Sedge	Sparse
N	Nymphaea	White water lily	Sparse
a	Peltandra virginica	Arrow arum	Sparse
X		Bottom growth	Sparse
J	Juncus	Rush	Sparse
G	Gramineae	Grass family	Sparse
OVERALL ABUNDANCE: Sparse			
GENERAL OBSERVATIONS:			
<p>1. Plants were rated sparse overall but were common in the northwestern coves. Although plants were rated sparse in both 1978 and 1989, they appeared to be more abundant and widespread in 1989.</p>			